

25 January 1962

MEMORANDUM FOR: Chief, TID

FROM: Chief, TID/TAB

SUBJECT: Progress Report on the [REDACTED] NOT INTL
Angle Camera Calibrator Contract

1. On 4 January, I visited [REDACTED] to review technical progress on the calibrator that they are currently manufacturing for NPIC. In addition to our calibrator, they are also manufacturing additional units for the White Sands New Mexico Missile Test Center, and U. S. Navy PIC. Due to the limitations of the original proposal, the following listed changes are being made in the other two units at the request of the respective organizations.

- a. Item (l) of contract: Design the supporting structures to accommodate cameras up to 200 lbs.
- b. Item (m) of contract: A 24-inch diameter clearance between the autocollimator support frame to accommodate large cameras with lenses near the side of the camera body.
- c. Item (n) of contract: Place 12 additional targets at half-angles of 15° , $17\frac{1}{2}^{\circ}$, and 20° on diagonals that are at 90° to each other to accommodate cameras with a square format as well as a rectangular format.
- d. Item (o) of contract: Increase height of target plane to 12 inches from the floor for easy access to replace lamps and for foot clearance. Increase height of autocollimator to 62 inches for greater distance between collimator lens and autocollimator. Over-all height will not exceed 6 feet.
- e. Item (p) of contract: Install a bull's eye level on the autocollimator, camera stage, and collimator lens assembly for rough leveling.

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- f. Item (q) of contract: Install a mercury on/off switch for manual exposure control for use on long exposures beyond range of timer.
 - g. Item (r) of contract: Select an electric impulse counter with as large numerals as is feasible.
 - h. Item (s) of contract: Consecutively number all targets.
 - i. Item (t) of contract: Install fiducial illumination.
 - j. Item (u) of contract: Install standard safelight with series OA, II, and III filters to autocollimator frame.
 - k. Item (v) of contract: Install access doors for entrance to top of target area.
 - l. Item (w) of contract: Constant voltage regulator with standard three wire plug.
2. Additional amendments to contract.

<u>Item</u>	<u>Change</u>
(b)	Delete "24 x 36 mm" and insert "square".
(g)	Delete "45" and insert "49"
(n)	Delete sentence and insert "Place 12 additional targets at half-angles of 15° , $17\frac{1}{2}^{\circ}$ and 20° on diagonals of a rectangular format to accommodate cameras with 24 x 36 mm format.

The price adjustment to incorporate the above features in the calibrator would be [REDACTED]

3. The items of particular interest to NPIC are:

- a. Item (n): The placement of additional targets in the instrument so that we may calibrate most rectangular formats out to the format edge. Conventional placement of targets at right angles is not satisfactory to cover the entire rectangular format, while placement of targets at other than right angles restricts the use of square formats. Attached is a copy of the target format that will be supplied under the amendment.
- b. Item (r): To provide a electric impulse counter in both the target focal plane and on the control panel. This is

desirable so that we may have a numerical value exposed on the film for filing and retrieval purposes with the same number on the control panel for the operator to record on the data sheet.

- c. Item (s): To consecutively number all targets. This is of particular importance from the view of data reduction so that the comparator operator can properly identify the particular target he is measuring.
- d. Item (t): To install fiducial or format edge illumination. The original proposal made no provision for format edge illumination to provide for location of the targets within the format. Although format edge lighting could be accomplished by a double exposure fogging technique, this has proven unsatisfactory on the present calibrator. This feature is of prime importance and alone justifies the increase in cost. The fiducial illumination will probably be provided by lighting the area around the targets as illustrated on the attached target format.

STATINTL

4. In addition, I suggested two more changes which [REDACTED] agreed to provide at no extra cost. They are:

- a. To provide an additional accessory clamp of our suggested design. Experience on the present calibrator has proven the inadequacy of their clamping device for small cameras. The people who most frequently use the calibrator have come up with a design which I submitted to them for consideration.
- b. To install a timer or timers of adequate range to handle all exposure situation. From experience here at NPIC we have been using exposure times from approximately 1/50 second to several seconds on operational type films. When possible it is desirable not to use the camera shutter in order to minimize vibration, necessitating a high-speed timer. USNPIC, however, is using exposures of up to 30 minutes on glass plates with an emulsion rated at 0.2 ASA. The timer to be provided on the original proposal would have a range of $2\frac{1}{2}$ seconds to 15 minutes. Preliminary investigation of timers available indicated that it would be possible to provide a timer of sufficient range to handle both situations, i.e. 1/60 second up to 30 minutes. In addition, this would eliminate the need for item (q) of the proposed changes.

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5. A revised proposal incorporating the above changes has been prepared by [REDACTED] and is being forwarded through normal contract channels. It is recommended that the proposal be seriously considered and accepted in order to provide a more versatile calibrator.

[REDACTED] STATINTL

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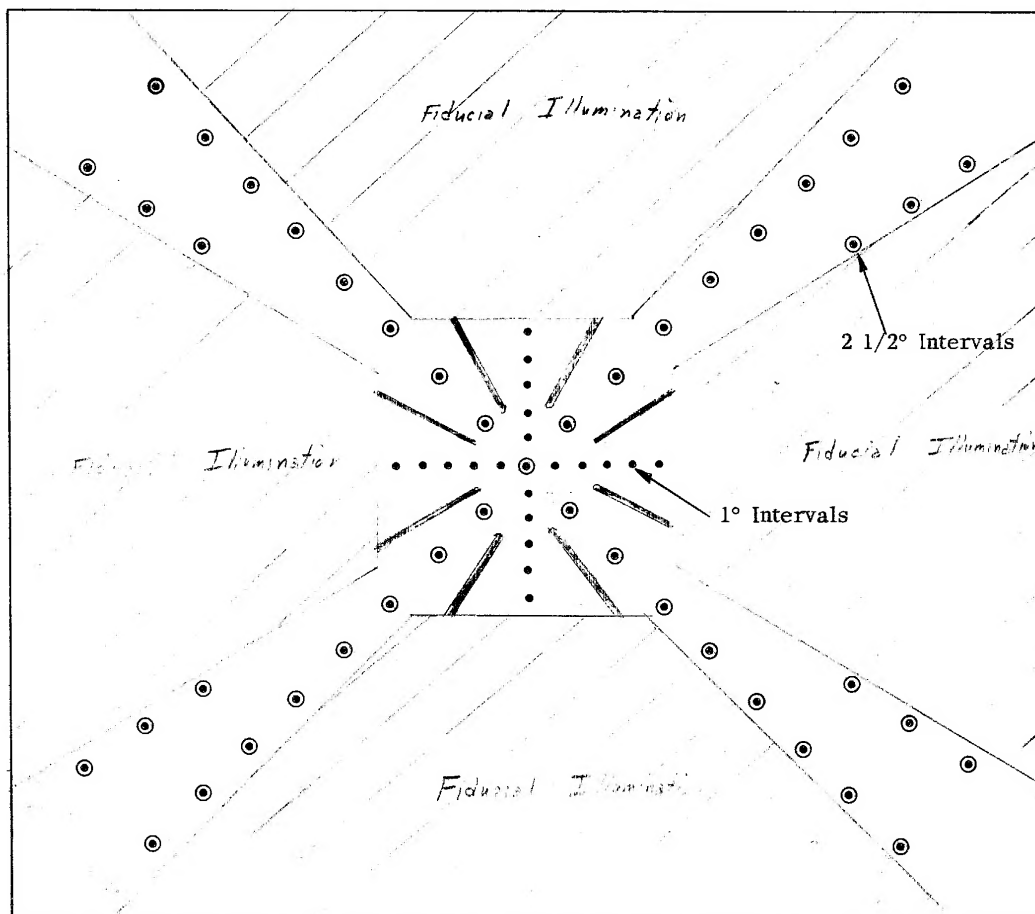
Distribution:

Orig - Chief, TID
1 - Chief, TP & DS
1 - Contract File (Admin)
1 - TID/TAB Chrono

NPIC/TID/TAB/JPR/met (25 Jan 62)

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<u>Legend</u>	<u>Qty.</u>
⊙ Center-cross and Resolution Patterns	45
• Center-cross Only	20
Total	65



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 Figure 2. (Revised 14 December 1961). TARGET ARRAY (1/2 SCALE)

FROM:

TID/TAB

DATE:

25 Jan 62

TO	INITIALS	DATE	FOR YOUR								
			SIGNATURE	INFORMATION	COMMENTS	APPROVAL	ACTION	SEE ME	FILE	RETURN	SEE REMARKS BELOW
DIR											
DEP/DIR											
EXEC/DIR											
OPS/OFF											
SA											
SA											
CH/AS											
CH/SS											
CH/RS											
CH/PAS											
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CH/PD											
CH/DMD											
CH/TID											
SIO/CIA											
SIO/ARMY											
SIO/NAVY											
SIO/AF											
SEC/AC											

REMARKS:

MWK -
 Proceed!

30 Jan - Hold till [redacted] gets a new
 proposal with proper cost breakdown

NPIC-FM30(9-61)

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